

transmits wireless signals to network node **115a** and/or receives wireless signals from network node **115a**. The wireless signals contain voice traffic, data traffic, control signals, and/or any other suitable information.

[0032] As described with respect to FIG. 1 above, embodiments of network **100** may include one or more wireless communication devices **110**, and one or more different types of network nodes capable of communicating (directly or indirectly) with wireless communication devices **110**. Examples of the network nodes include network nodes **115**, radio network controller **120**, and core network nodes **130**. The network may also include any additional elements suitable to support communication between wireless communication devices **110** or between a wireless communication device **110** and another communication device (such as a landline telephone).

[0033] A network node **115** refers to any suitable node of a radio access network/base station system. Examples include a radio access node (such as a base station or eNodeB) and a radio access controller (such as a base station controller or other node in the radio network that manages radio access nodes). Network node **115** interfaces (directly or indirectly) with core network node **130**. For example, network node **115** interfaces with core network node **130** via an interconnecting network **125**. Interconnecting network **125** refers to any interconnecting system capable of transmitting audio, video, signals, data, messages, or any combination of the preceding. Interconnecting network **125** may include all or a portion of a public switched telephone network (PSTN), a public or private data network, a local area network (LAN), a metropolitan area network (MAN), a wide area network (WAN), a local, regional, or global communication or computer network such as the Internet, a wireline or wireless network, an enterprise intranet, or any other suitable communication link, including combinations thereof.

[0034] Core network node **130** manages the establishment of communication sessions and provides various other functionality for wireless communication device **110**. Wireless communication device **110** exchanges certain signals with core network node **130** using the non-access stratum layer. In non-access stratum (NAS) signaling, signals between wireless communication device **110** and core network node **130** pass transparently through network nodes **120**.

[0035] In certain embodiments, wireless communication device **110**, network node **120**, and core network node **130** use any suitable radio access technology, such as long term evolution (LTE), LTE-Advanced, UMTS, HSPA, GSM, cdma2000, WiMax, WiFi, another suitable radio access technology, or any suitable combination of one or more radio access technologies. For purposes of example, various embodiments may be described within the context of certain radio access technologies. However, the scope of the disclosure is not limited to the examples and other embodiments could use different radio access technologies. Each of wireless communication device **110**, network node **115**, radio network controller **120**, and core network node **130** include any suitable combination of hardware and/or software. Examples of particular embodiments of a network node **115**, wireless communication device **110**, and core network node **130** are described with respect to FIGS. 2, 10, and 11, respectively.

[0036] FIG. 2 is a block diagram illustrating embodiments of network node **115** configured for reducing power consumption. In the illustration, network node **115** is shown as a

radio access node, such as an eNodeB, a node B, a base station, a wireless access point (e.g., a Wi-Fi access point), a low power node, a base transceiver station (BTS), transmission points, transmission nodes, remote RF unit (RRU), remote radio head (RRH), etc. Other network nodes **115**, such as one or more radio network controllers, may be configured between the radio access nodes and core network nodes **130**. These other network nodes **115** may include processors, memory, and interfaces similar to those described with respect to FIG. 10, however, these other network nodes might not necessarily include a wireless interface, such as transceiver **210**.

[0037] Radio access nodes are deployed throughout network **100** as a homogenous deployment, heterogeneous deployment, or mixed deployment. A homogeneous deployment generally describes a deployment made up of the same (or similar) type of radio access nodes and/or similar coverage and cell sizes and inter-site distances. A heterogeneous deployment generally describes deployments using a variety of types of radio access nodes having different cell sizes, transmit powers, capacities, and inter-site distances. For example, a heterogeneous deployment may include a plurality of low-power nodes placed throughout a macro-cell layout. Mixed deployments include a mix of homogenous portions and heterogeneous portions.

[0038] As depicted, network node **115** includes a digital unit **205** and a radio unit array **210**. Digital unit **205** includes one or more of a processor **220**, memory **230**, and network interface **240**. Radio unit array **210** includes multiple radio units **260** that are each responsible for transmitting and receiving wireless signals within a distinct cell site/sector. In particular embodiments, each radio unit **260** may be selectively configured to transmit in either a multi input multi output (MIMO) configuration, a single input single output (SISO) configuration, or a single input multiple output (SIMO) configuration. Radio unit **260** operating in a MIMO configuration utilizes multiple antennas in antenna system **270** to transmit wireless signals that are received by multiple antennas of wireless device **110**. In contrast, a radio unit **260** operating in a SISO configuration utilizes a single antenna to transmit wireless signals that are received by a single antenna of wireless device **110**. However, a radio unit **260** operating in a SIMO configuration utilizes a single antenna in antenna system **270** to transmit wireless signals that are received by multiple antennas of a wireless device **110**. Operating a radio unit **260** in MIMO configuration may improve communication performance by increasing data throughput and link range. However, a radio unit **260** operating in a MIMO configuration will consume more power than a radio unit **260** that is operated in a SIMO configuration. Likewise, a radio unit operating in a SIMO configuration will consume more power than a radio unit **260** in a SISO configuration. Thus, where load conditions do not warrant use of a MIMO configuration, radio unit **260** may be switched to a SIMO or SISO configuration to realize energy savings.

[0039] The wireless signals may be transmitted to and received from wireless communication devices **110** via an antenna system **270**. Network interface **240** communicates signals to backend network components, such as a gateway, switch, router, Internet, Public Switched Telephone Network (PSTN), other network nodes **115**, radio network controllers **120**, core network nodes **130**, etc.

[0040] Processor **220** includes any suitable combination of hardware and software implemented in one or more modules